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## THE UNDERLYING PRINCIPLES OF CROP ROTATION APPLIED IN PRACTICE.

F. C. Good, Brant Co., Ont.

### A Prize-Winning Farmer Discusses his System of Crop Rotation Reasons Given for his Practice. Alfalfa for a Hay Crop. Pastures Left but One Year.

THE general objects in view in the observance of any system of rotation are: 1. The growing of maximum crops with a minimum loss of plant food, together with a maintenance of soil fertility; 2. The destruction of weeds and the improvement of the texture of the soil.

Perhaps, a more important question than that of rotation is that of the selection of suitable crops to grow in the rotation. For example, it is more important to see that clover constitutes one of the crops than it is to observe any particular order in the rotation. Granting, however, that the farmer has made his selection (which will be largely determined by the market, soil, and climatic conditions) with a view to obtain the most suitable crop, or varieties of crops, for his purposes, then he has to face the question of rotation. In treating this matter I think I can best throw light upon it by dealing with my own practice, giving reasons for adhering to, or changing, any particular method, and thus discussing in an informal way, some of the underlying principles.

#### MR. GOOD'S OLD ROTATION

Up to the present time I have been following a five-year rotation: Hay, pasture, oats, roots and corn, mixed grain, seeded down. As I also grow wheat, I have been working that in on the side, on pasture or hay land plowed in July or August.

This rotation is, perhaps, somewhat unusual, and may need some justification. In the first place I prefer not to summer fallow for wheat, as I practically lose one year's crop, and get such a heavy stand of wheat straw that it will probably all go down and not only be difficult to harvest but smother out young clover. I also prefer to put oats upon a late-plowed sod, that has been top-dressed with manure the previous winter, that is the winter before it is pastured. In this way one gets a fairly good crop of oats that does not go down. Oats are, of course, a good crop to follow roots and corn, but for that I prefer the mixed crop, as it gives me bigger returns.

#### DISSATISFIED WITH HIS ROTATION

In some particulars, however, I have become dissatisfied with the foregoing rotation, and am now changing. In the first place, I wish to use alfalfa as my main hay crop, and thus remove that from the rotation altogether. (Last season I thoroughly cleaned a field for seeding to alfalfa, as I have not yet got a really good stand of that most excellent hay plant. Two years ago, however, I cut 17 acres, largely alfalfa, and cut it again last year. But it was not good enough to leave permanently). In the second place, I find that a sod plowed for wheat in midsummer is apt not to get killed, and if there is any blue grass in it, as there usually is, it spreads rapidly and greatly interferes with the growth of young clover.

er. In the third place, I do not get a sufficient quantity nor a good enough quality of pasture the year after cutting hay, as the clover is mostly gone, and the timothy and other grasses are relatively poor pasture plants.

For these reasons I am working into the following five-year rotation: Pasture, oats, roots and corn, mixed grain, wheat, seeded down. Farm and Dairy readers will notice that the hay crop is not in the rotation, and that I pasture the fresh seeding. By dividing my pasture field with a temporary fence, and not letting the stock on it till June 1st, I have plenty of excellent feed until quite late in the summer, and can carry a relatively large stock on a small acreage. This pasture land is plowed deeply late in the fall and put into oats the next spring. The oats, following upon a clover sod, pastured all summer, have abundance of plant food but not enough immediately available to cause them to grow as rankly

and once across the rows when the corn is about six inches high.

The corn and mangel ground is kept clean all summer and given surface cultivation next spring in preparation for sowing a mixture of oats and barley, with a sprinkling of peas, and about four pounds flax seed to the acre.

#### PREPARING FOR WHEAT

Immediately after harvest I plow this stubble with the two-furrow plow and roll down. Later, when time permits, I top dress it with six loads of manure to the acre and work the manure in with the harrows. This is given surface cultivation until time for seeding to wheat, and the wheat I seed with a mixture of red clover, alsike, alfalfa and timothy the following spring. On ground thus prepared, there is no grass to interfere with the growth of the young clover, and the wheat is not supplied with available plant food so fast that it all goes down. The top dressing with manure almost guarantees a good catch of clover, as anyone who has made the experiment can prove for himself. I had a beautiful field of wheat last year on ground thus prepared, and a grand catch of clover which was not at all likely to be smothered out. I would rather lose 20 bushels of wheat to the acre than have my clover crop destroyed.

The rotation described in the foregoing looks after five fields, and the alfalfa hay a sixth. I have a seventh field which I can use for pasture, field crops, rape, or hay, as circumstances advise, besides two orchards, two small fields of alfalfa, and a garden near the buildings.

#### ROTATION ADAPTED TO REQUIREMENTS

I have selected this rotation to supply me with hay, straw, grain and pasture of the desired kinds, and in the desired quantities for any purposes. I believe it will enable me to maintain or increase the fertility of the soil, prevent the spread of noxious weeds, and give large returns per acre.

I suppose every farmer follows some system of rotation, either by accident or design; and as the desirability of different rotations depends upon a number of conditions which vary in different rotations, no one rotation or number of rotations can be claimed to be the best. It is, however, important that the average farmer study the question with a view to discern the underlying principles which determine all good rotations, and then, having in mind his own special conditions, he is not apt to go far astray in applying the principles to his own circumstances.

**SILOS.**—Stave silos are entirely satisfactory. They should, however, be very carefully and staunchly built on a good cement foundation. The cost will run from \$1 up to \$3 a ton capacity. Cement silos are very durable and quite satisfactory, if well built. They will cost from \$2 to \$5 a ton capacity. Care must be taken to build of good material and to strongly reinforce with wires or bands. The round shape is essential to best results. Where wood is used only one thickness of two inch staves, or one thick-ness inch dressed lumber in square or straight line walls should be used.—J. H. Grisdale, Dominion Agriculturist, Ottawa.

### Warm Words of Commendation

Editor, Farm and Dairy.—Just now when the general press of our country is so overrun with reading matter suppressing our demands for an increased British preference, and trying to make us farmers go against our best interests and oppose reciprocity (much of this matter evidently being paid for by the special interests against us) we farmers owe a double debt of gratitude to you, and to another farm paper, for the way you have stood up manfully for our rights. I wish to commend you for what you have done for us farmers in this fight.—C. F. Marsh, Clarksburg, Ont.

as they would do upon a piece of ground fallowed the previous year. They will rarely go down badly.

#### THE OAT STUBBLE AFTER HARVEST

Immediately after harvest the oat stubble is plowed lightly with a two-furrow plow, worked down and seeded with rape. If the season is favorable I get quite a bit of feed for the late fall; and at all events, if the rape does not amount to much, the weed seeds will germinate and be destroyed later. This land I do not plow deeply in the fall but cultivate next spring to clean the surface; manure at the rate of 12 loads an acre, plow under with the two-furrow plow, roll, harrow and roll again. It is then left for a week or two, to allow the weed seeds to germinate, cultivated and harrowed again and seeded with corn and mangels.

I partly sprout my mangel seed before sowing, so that it may come on ahead of the weeds, and so that I may continue the cultivation of the seed bed as late as possible.

The corn ground I harrow once across the rows three or four days after sowing, once lengthwise, just as the corn is coming through the ground,

\* Mr. Good's farm was one of the successful competitors in the first year of the Dairy Farms competition as conducted by Farm and Dairy during the past two years. This essay on his own actual practice was written by Mr. Good as requested of him and recommended by the rules of the competition.